Pilot Study

Refining the Journal Club Presentations of Postgraduate Students in Seven Clinical Departments for Better Evidence-based Practice

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Abstract

Background: A gap between best practice and actual clinical care exists and this can be overcome by evidence-based practice (EBP), which is essential to improve the clinical decision making. A strategy to reduce deficits in care provision is to train the postgraduate students in the practice of EBP in the journal clubs as evidence from medical colleges in India reveals that current format of journal club presentations is unsatisfactory. **Aim:** The aim of the present study was to refine the journal club presentations of postgraduate students of clinical departments and to study the effectiveness of EBP training in them for better EBP. **Subjects and Methods:** This study was conducted in S. Nijalingappa Medical College, Bagalkot, Karnataka, India, and it was a pre- and post-trial. This study was a pre- and post-trial done during the journal club presentations of postgraduate students from clinical departments. Postgraduate students' understanding of concepts about EBP was assessed using Fresno test questionnaire in traditional journal club presentation. A hands-on session incorporating steps of EBP was imparted to them. Soon after the session, each student was assessed. In the next journal club presentation, 1 week later, the students were assessed again with the same questionnaire by the same faculty. Scores of the postgraduate students, before and after intervention (immediate and 1 week later), were compared. Data were analyzed by paired *t*-test using SPSS. **Results:** An increase in mean posttest scores was seen immediately and also 1 week later as compared to the pretest scores. The scores also increased significantly, when each step of EBP was considered. **Conclusions:** Incorporating teaching of EBP in journal club presentations improved the competencies of postgraduate students in clinical decision making.

Keywords: Evidence-based practice, Journal club, Postgraduate training

Introduction

The World Federation of Medical Education has proposed an international framework for quality of postgraduate medical education and developed global standards.[1] In line with this, the medical council of India laid down the general objectives of postgraduate training which included training them in research methodology, critical appraisal, ethics, self-directed learning, and making them clinically competent.[2]

A gap between best practice and actual clinical care exists and this can be overcome by evidence-based practice (EBP), which is essential to improve the clinical decision making. Evidence-based clinical guidelines have become a major feature of health care provision to bridge the gap between best evidence and clinical care. However, studies suggest that

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clinical use of these guidelines does not occur that between 10 and 40% of patients do not receive care based on current scientific evidence and that ≥20% of care provided is not needed or is potentially harmful to the patients.[3,4] A strategy to reduce these deficits in care provision is to increase the number of EBP training programs;[5] their goal being to improve outcomes for patients by increasing postgraduate health care knowledge, skills, and attitudes toward EBP.[6]

"Evidence-based medicine" was coined and defined by Sackett *et al*. in 1996 as "the conscientious, explicit, and judicious use of the current best evidence in making decisions about the care of individual patients." This became EBP, as the principles and process were adopted by many disciplines in health and social care.[7]

The EBP process can be considered as a series of steps:[7]

1. Ask practice-focused questions, and frame the questions to find an answer
2. Search, identify, and access the potential evidence
3. Evaluate the quality of evidence and decide what is best evidence
4. Apply the best evidence to the specific case
5. Evaluate the EBP care provided, and the processes by which care decisions were reached.

The first step of EBP, i.e., formulating a focused answerable question can be done using PICO model:

- P = Patient/patient's problem
- I = Intervention/investigation intended
- C = Comparison intervention/investigation
- O = Outcome (patient-oriented).

Having defined the question, the next step is to locate all the evidence from the literature that may be pertinent. One of the most cited hierarchies of evidence is that by Guyatt *et al*. at the highest level are the systematic reviews and meta-analyses, followed by randomized controlled trials with definitive results, randomized controlled trials with nondefinitive results, cohort studies, case–control studies, cross-sectional studies, and at the lowest level are the case reports.[7]

The third step, being the critical appraisal, is a judgment about what is the best evidence available and is it valid, reliable, and applicable. The fourth step ensures that the evidence is applicable to the practice context, and the final step is to evaluate the EBP care provided, the processes by which care decisions were reached and to update our knowledge.[7]

Journal Clubs are a part of the postgraduate medical education of all disciplines. They have been used to teach critical appraisal, research designs, and biostatistics and to improve reading habits.[8,9] In recent times, they have been seen as a mechanism for overcoming barriers associated with EBP.[10] In traditional models of journal clubs, the presenter chooses an article at random and summarizes the article in terms of the authors' results and conclusions. Most presenters do not appraise the quality of studies. The articles discussed are not necessarily relevant to clinical practice; hence, there is a decline in the attendance.[11] Evidence from Indian medical college also reveals that the current format of journal club presentations is unsatisfactory.[12]

In one study, the journal club at a university-based residency program was restructured to introduce, reinforce, and evaluate residents' understanding of the concepts of EBP. The authors developed pre- and post-tests for use during each Journal Club, which showed significant improvement, better understanding, and utilization of the concepts of EBP.[13]

Only two validated assessment tools have been developed to specifically assess all aspects of EBP competence. Of the two tools, Berlin and Fresno tools, only the Fresno tool comprehensively assesses EBP competency across all relevant domains.[14-16]

There is no evidence in the Indian literature, to the best of our knowledge, of training postgraduate students in EBP in journal clubs. Hence, the present study was undertaken to refine the journal club presentations of postgraduate students of clinical departments and to study the effectiveness of EBP training in them for better EBP. The objectives set forth for the students were that at the end of the EBP training session, the postgraduate student should be able to perform all the steps of EBP, as assessed by Fresno questionnaire and rating scale.

Subjects and Methods

Study design and setting

This study was a longitudinal pre- and post-trial conducted at S. Nijalingappa Medical College, Bagalkot, Karnataka, India.

All the postgraduate students (n = 30) from clinical departments were included in the study, namely students from the Departments of General Medicine (n = 4), General Surgery (n = 4), Obstetrics and Gynecology (n = 4), Pediatrics (n = 5), Ophthalmology (n = 5), Anesthesia (n = 4), Orthopedics (n = 2), ENT (n = 1), and Dermatology (n = 1).

Ethical issues

Ethical clearance was obtained from the institution and informed consent from all the postgraduate students.

Procedure and intervention

This study was done on thirty clinical postgraduate students. The postgraduate students' understanding of the concepts about EBP was assessed using a validated Fresno test questionnaire[17] in the traditional journal club presentation. A hands-on session incorporating all the steps of EBP was imparted to them. Students were trained in formulating a pertinent, focused and answerable question using problem, intervention, comparisons,

and outcomes (PICO) model. They were also involved hands-on in the various means of literature search to find the best evidence and critically appraise the evidence searched. Later, they were trained in making a clinical decision based on the evidence searched, using clinical scenarios. Soon after the session, each student was assessed by a faculty who was trained in EBP and its evaluation. In the next journal club presentation, 1 week later, the students were assessed again with the same questionnaire by the same faculty. Scores of the postgraduate students, before and after intervention (immediate and 1 week later), were compared with respect to each department. Further, a cumulative data from all the departments was also obtained statistically.

Statistical analysis

Data were analyzed by paired *t*-test and Pearson's correlation using SPSS version 20.0 (IBM, Armonk, NY). $P < 0.05$ was considered as significant.

Results

The total number for participants was thirty, among which 19 were male and 11 female students. The mean age in years was 27.9 (3.7).

An increase in the mean posttest scores was seen in all steps immediately and also 1 week later as compared to the pretest scores. The posttest scores taken after 1 week, however, deteriorated as compared to the posttest scores obtained immediately after the session [Table 1].

The pretest, immediate posttest, and 1 week later posttest scores are depicted as a mean (SD) in Table 1 (overall and split step-wise) and Table 2 (department-wise scores).

The scores increased significantly when each step of EBP was considered. Scores of the students from every department showed a positive change; highest scores were seen in the students from the Department of Surgery [Table 2].

There was also no correlation between the scores and age [Figure 1].

Discussion

The results of the present study reveal the beneficial effects of training the postgraduate students in the practice of EBP during their journal clubs. A very low mean pretest score on the Fresno questionnaire indicates the ignorance of the students toward the

Table 1: Fresno test questionnaire overall scores and scores in each step of evidence-based practice

Fresno test scores	Pretest (I)	Posttest 1 (II)	Posttest 2 (III)	*t* and *P* for I and II	*t* and *P* for I and III	*t* and *P* for II and III
Overall score (steps 1+2+3) (maximum score=121)	20.40 (8.76)	93.53 (13.66)	71.83 (12.42)	−29.30 <0.001*	−22.05 <0.001*	38.64 <0.001*
Step 1 (EBP question) (maximum score=3)	0.47 (0.73)	2.90 (0.30)	2.43 (0.67)	−14.84 <0.001*	−10.10 <0.001*	3.50 <0.01*
Step 2 (literature search) (maximum score=14)	6.30 (2.79)	12.00 (2.01)	11.07 (2.08)	−13.71 <0.001*	−10.16 <0.001*	3.61 <0.01*
Step 3 (critical appraisal) (maximum score=104)	13.63 (7.03)	78.63 (13.53)	58.33 (12.08)	−25.68 <0.001*	−19.48 <0.001*	40.90 <0.001*
Step 4 (application of evidence) (5-point Likert scale)	1.93 (0.86)	4.83 (0.37)	4.63 (0.49)	−19.78 <0.001*	−16.15 <0.001*	1.98 0.056
EBP rating (5-point Likert scale)	4.03 (1.09)	4.60 (0.56)	4.63 (0.49)	−2.48 <0.01*	−2.75 <0.01*	−0.25 0.801

*Statistically significant, EBP: Evidence-based practice

Table 2: Department-wise distribution of the Fresno test questionnaire overall scores

Department	Pretest (I)	Posttest 1 (II)	Posttest 2 (III)	*t* and *P* for I and II	*t* and *P* for I and III	*t* and *P* for II and III
Medicine + Dermatology (*n*=5)	20.80 (12.25)	88.80 (10.70)	67.40 (10.23)	−12.71 <0.001*	−9.25 <0.01*	35.66 <0.001*
Surgery (*n*=4)	25.75 (4.19)	102.00 (9.48)	80.75 (6.39)	−13.03 <0.01*	−13.27 <0.01*	12.14 <0.01*
Obstetrics and Gynecology (*n*=4)	21.00 (9.59)	99.75 (17.72)	77.00 (17.35)	−7.36 <0.01*	−5.25 <0.01*	47.52 <0.001*
Pediatrics (*n*=5)	14.40 (8.41)	81.00 (3.67)	62.20 (2.49)	−20.59 <0.001*	−12.24 <0.001*	19.39 <0.001*
ENT + Ophthalmology (*n*=6)	21.00 (4.56)	96.83 (11.95)	71.83 (11.33)	−19.14 <0.001*	−13.23 <0.001*	17.39 <0.001*
Orthopedics + Anesthesia (*n*=6)	20.50 (11.04)	94.83 (17.64)	74.17 (16.41)	−9.54 <0.001*	−7.44 <0.01*	21.65 <0.001*

*Statistically significant. ENT: Ear, nose, and throat

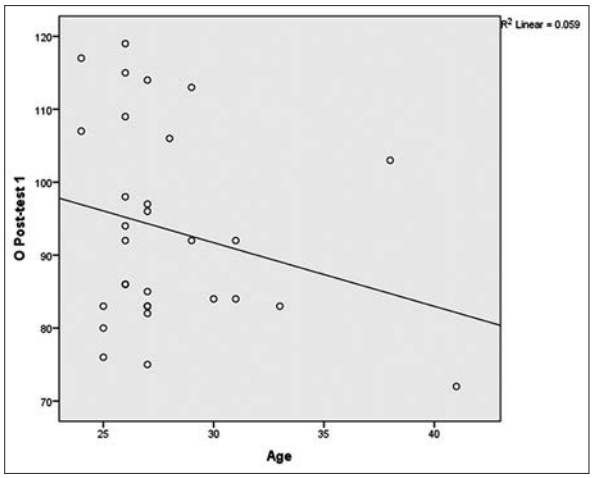

Figure 1: Correlation of scores with age

steps of EBP. But, a considerably high score obtained on rating EBP as an important tool for clinical decision making, makes us aware of the fact that the postgraduate students realize the importance of EBP. Most of the students performed well in Steps 1, 2, and 4 but lacked in Step 3. Students formulated a pertinent, focused and answerable question using PICO model. They could demonstrate the various means of literature search to find the best evidence with not much of difficulty. They could also make a clinical decision based on the evidence searched. As Step 3 involves a critical appraisal of the evidence including biostatistics, majority of them found the calculation of statistical parameters difficult to remember and understand. This was one of the main reasons for a significant deterioration of the posttest scores after 1 week in Step 3.

All the students were benefitted from the EBP session, but most benefitted were from the Department of Surgery. Age did not affect the process of learning as evident by Pearson's correlation. It would not be appropriate to reason out such benefits as the sample size was small when each department or the age group was considered.

In traditional models of journal clubs, the presenter or the moderator of the journal club chooses an article at random which may not be clinically relevant. This would result in a decline in the attendance and also interest in the journal clubs.[11] Most of the articles are just read and not critically appraised.[11] The results of the present study are similar to a study in which the journal club was restructured to introduce, reinforce, and evaluate residents' understanding of the concepts of EBP. The authors here developed pre- and post-tests for use during each journal club, which showed significant improvement, better understanding, and utilization of the concepts of EBP.[13]

As a part of the present study, training was also imparted to a few selected faculty members prior to this postgraduate session for better compliance in continuing the practice of EBP in the journal clubs. The faculty members were happy and keen in learning the steps of EBP and assured that they would use the journal clubs as platforms for the practice of EBP and also formulate some practice guidelines for the department.

At the end of the training, all the postgraduate students expressed great pleasure in having learned the steps of EBP which would help them in clinical decision making and above all the journal clubs would be more fruitful henceforth in making use of the daily patient encounters to formulate a focused question, search the literature for appropriate evidence, critically appraise that evidence, and finally apply it to the patient.

The limitation of the present study was the small sample size when each department was considered and due to the small sample size, a stronger study design, such as randomized controlled trial (RCT) with cross-over could not be done. However, the information generated is very relevant for post graduate medical education

Conclusions and Implications

It can be concluded that incorporating the teaching of EBP in journal club presentations has improved the competencies of the postgraduate students in clinical decision making, thereby refined the journal clubs by making them more effective and relevant in clinical practice.

Scope for future research

Future research can be directed toward having a study with large sample size involving multiple centers, for which an RCT with cross-over can be designed. The results obtained can also be compared and correlated with the anxiety scores of the postgraduate students.

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Conflicts of interest

There are no conflicts of interest.

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